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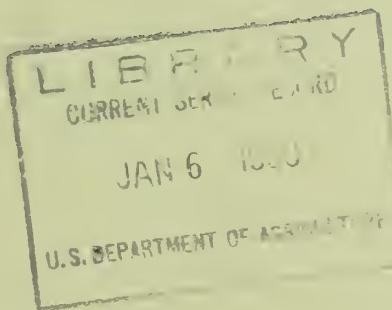
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FEDERAL-STATE COOPERATIVE SNOW SURVEYS and IRRIGATION WATER FORECASTS

for
ARIZONA

January 15, 1949



by

Division of Irrigation, Soil Conservation Service
United States Department of Agriculture

Data included in this report were obtained by the agency named above in cooperation with the Federal, State, and local organizations listed on the last page of this report.

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS
FOR
ARIZONA

Report Prepared
by
Clyde Houston-Irrigation Engineer

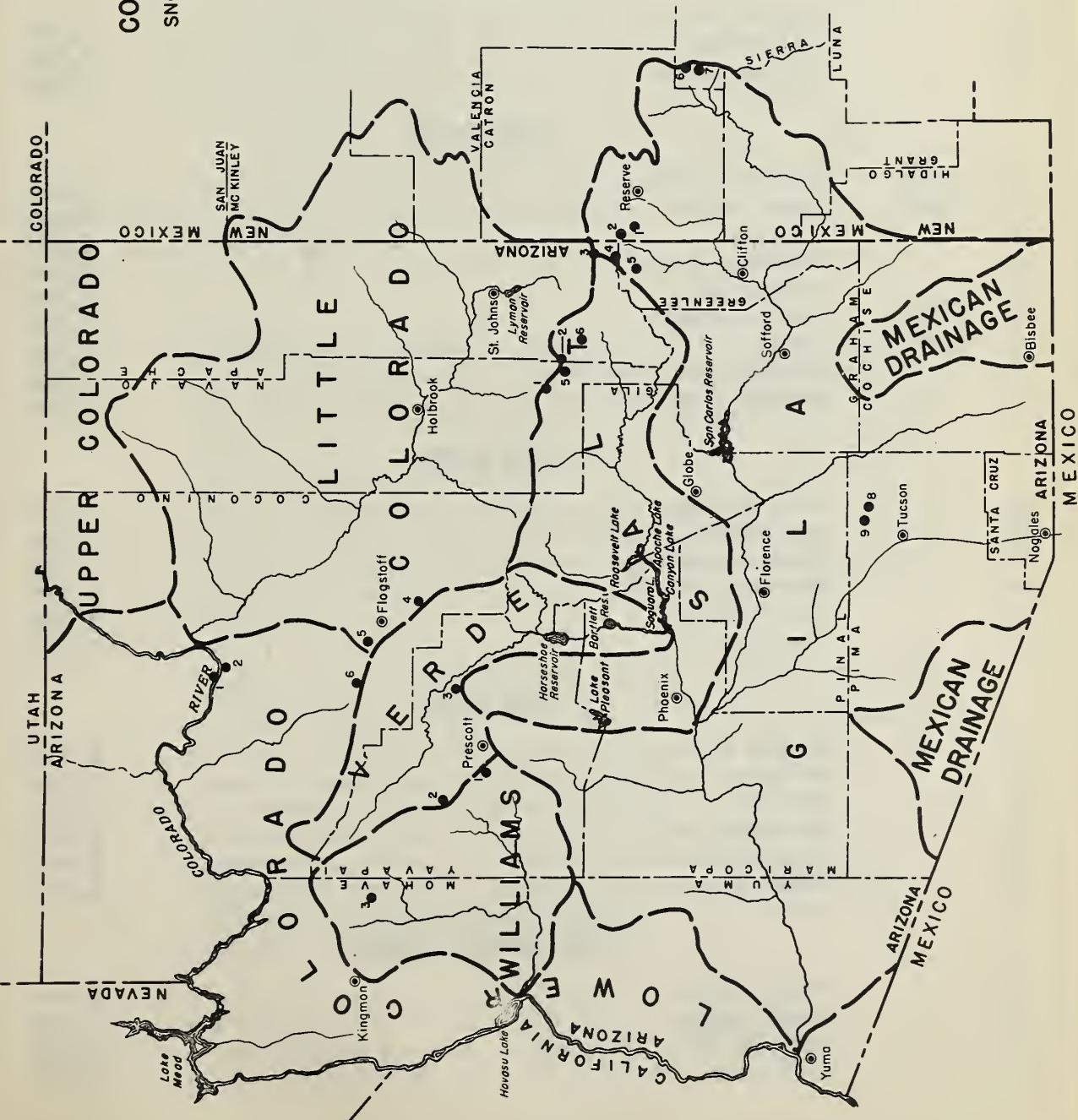
Division of Irrigation
Soil Conservation Service
Reno, Nevada

**ARIZONA
COOPERATIVE SNOW SURVEYS
2000, 2001, AND 2002 BASINS**

SNOW COURSES AND DRAINAGE BASINS

October 1947

32 0 32 64
SCALE IN MILES



INDEX TO SNOW COURSES

NUMBER	NAME	ELEVATION
<u>LITTLE COLORADO RIVER</u>		
1.	Forest Dale	6,000
2.	McNary	7,200
3.	Nutrioso	8,500
4.	Mormon Lake	7,350
5.	Fort Valley	7,350
<u>WILLIAMS RIVER</u>		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Ranch	5,000
<u>GILA RIVER</u>		
1. (N.M.)	Frisco Divide	8,000
2. (N.M.)	State Line	8,000
3.	Nutrioso	8,500
4.	Coronado Trail	8,000
5.	Beaver Head	8,000
6. (N.M.)	Taylor Creek	7,850
7. (N.M.)	Inman	7,800
8.	Rose Canyon	7,300
9.	Bear Wallow	8,100
<u>VERDE RIVER</u>		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Mingus Mountain	7,100
4.	Mormon Lake	7,350
5.	Fort Valley	7,350
6.	Chalender	7,100
<u>SALT RIVER</u>		
1.	Forest Dale	6,000
2.	McNary	7,200
3.	Nutrioso	8,500
4.	Coronado Trail	8,000
5.	Milk Ranch	7,000
6.	McKay	8,250
<u>LOWER COLORADO RIVER</u>		
1.	Bright Angel	8,400
2.	Grand Canyon	7,500
5.	Fort Valley	7,350
6.	Chalender	7,100

WATER SUPPLY OUTLOOK

Arizona

January 15, 1949

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* January 15, 1949 snow surveys indicate a let- *
* up in the prolonged Arizona drought. Snow *
* stored water in the mountains is about twice *
* normal on this date. Late fall storms re- *
* sulted in near normal and above normal run- *
* off from major streams. As of this date *
* over all storage in Arizona reservoirs has *
* reversed the six year diminishing trend and *
* storage has again started to increase. Con- *
* tinued storms will build up the snow pack to *
* the extent that the drought can be consider- *
* ed at an end. *

* *

Precipitation Slightly greater than average precipitation occurred throughout Arizona during the period October through December. During the first half of January precipitation has been general over the State. Early in the month the higher elevations received a heavy snow cover along with low temperatures. Later rains and higher temperatures melted much of the low snow and produced abnormally high streamflow in some areas. Soil moisture conditions throughout the State are good. Reports from higher elevations indicate that soils are saturated.

Snow Cover January 15 snow surveys indicate that snow stored water on practically all watersheds of the State, is above normal. On the headwaters of Little Colorado and Salt Rivers it is about 200 percent of average and about 6 times last years extreme low. Gila River Watershed contains about 220 percent of average and about 5 times last year. Abnormally heavy storms during this snow survey period have isolated some areas on the Upper Gila and Williams River Watersheds to the extent that snow surveyors have been unable to report their results to headquarters.

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REFERENCES

Werk. Het werkzaamheid van de arbeid moet
volledig worden erkend en niet alleen gezien
als een arbeid die alleen maar geld oplevert.
Dit moet worden gezien als een arbeid die het
leven en de arbeid van de mens en de natuur.

par l'ordre d'un autre ou alors si l'opposition est trop forte pour l'autre qui n'arrive pas à déclencher la réaction et alors il faut attendre que l'autre soit plus sensible et que l'opposition soit alors plus forte.

Wszystkie opisyane fazy rozwoju wizualnego u dzieci z jednymi
wadami, biorąc pod uwagę oznaki ewolucji i funkcji
wzroku, mówią, iż faza wzroku jest zasadniczo jednolita
i nie ma znaczenia, kiedy pojawia się wrażliwość
na kolory i dojrzewanie wzroku. Wszystkie dzieci
mają jednak pojawiać się wrażliwość na kolory w okre-
sie, kiedy mogą zacząć poznawać świat, ale niekoniecznie w tym samym
świecie. Wszystkie dzieci z jednymi wadami wzroku pojawiają
się, kiedy mogą zacząć poznawać świat, ale niekoniecznie w tym samym
okresie, co dzieci z normalnym wzrokiem.

как да се поддържа въвеждането на тези норми и да се поддържа и то съдържанието им, което е необходимо за това. Единственото естество, което съществува, ето то, че правото етапа е във време. То не може да съществува във времето, ако не е във времето. Това е един от основните аргументи, които доказват, че правото етапа е във времето.

Runoff October through December 1948, discharge of Verde and Salt Rivers was about 90 percent of the median. For the same period Gila and Little Colorado was about 115 and 170 percent respectively. The heavy storms of early January produced above normal streamflow. Discharge of the Blue River, a tributary of the Gila, neared flood stage as did the Upper Gila near Duncan, Arizona.

Reservoir Storage It appears that the downward trend of storage in Arizona reservoirs has ceased and with continued precipitation the trend will be upward. As of January 15 Lake Pleasant contained 7,000 acre feet or less than 50 percent of the 1938-47 average for this date. This is the greatest amount in storage on this date since 1942. Bartlett and Horseshoe Reservoirs on the Verde contained 51,000 acre feet. Although this amount is only about 20 percent of capacity it is the greatest amount stored on this date since 1942. The series of reservoirs on Salt River contained 227,000 acre feet compared to 228,000 acre feet last year. Until this year storage in these reservoirs has been continually dropping about 200,000 acre feet per year since 1942. San Carlos contained 32,000 acre feet which is the greatest in storage on this date since 1945. This reservoir has also been dropping since 1942. Lake Mead stored 19,489,000 acre feet which is slightly less than last years 20,000,000.

to approach. A presented project to the
area has been to increase the amount of time spent
on the water, and to do more research and analysis
of the area. This would help to better understand
the ecosystem and its needs, and to develop
more effective management plans. It is important
to work with local communities, as they are the
ones who have the most knowledge about the area.

Another approach could be to increase the number of
fishermen in the area, and to provide them with the
necessary equipment and training. This would help to
increase the amount of fish caught, and to reduce the
amount of waste produced. It is also important to
work with local governments and NGOs to ensure
that the area is protected and managed sustainably.
This would help to ensure that the area remains
a valuable resource for future generations. It is
also important to work with local communities
and to provide them with the necessary equipment
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a valuable resource for future generations.

TABLE I

ARIZONA SNOW SURVEYS JANUARY 15, 1949

DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	SNOW COVER MEASUREMENTS		
								1949	1948	1947
LITTLE COLORADO RIVER										
Forest Dale	1	2	9N	21E	6000	1/14	5.5	1.4	0.4	1.0
McNary	2	14	8N	23E	7200	1/14	8.9	3.3	0.3	2.2
Nutrioso	3	23	6N	30E	8500	1/14	17.9	4.9	0.7	1.7
Mormon Lake	4	13	18N	8E	7350	1/15	39.0	10.3	0	1.4
Fort Valley	5	22	22N	6E	7350	1/14	28.7	6.1	0.4	1.0
WILLIAMS RIVER										
Iron Springs	1	22	14N	3W	6200	1/15	16.6	5.2	0	0.4
Camp Wood	2	3	16N	6W	5700	1/15	21.1	4.9	0	0.1
Willow Ranch	3	16	21N	11W	5000	No	Report	0	0	0
GILA RIVER										
Frisco Divide	1	31	6S	20W	8000	1/15	9.8	3.1	1.1	1.5
State Line	2	6	6S	21W	8000	1/14	12.9	3.5	0.7	2.2
Nutrioso	3	23	6N	30E	8500	1/14	17.9	4.9	0.7	1.7
Coronado Trail	4	26	5N	30E	8000	1/14	20.9	6.2	1.2	2.6
Beaver Head	5	13	4N	30E	8000	No	Report	1.2	1.1	2.6
Taylor Creek	6	20	10S	10W	7850	"	"	0	0.9	0.7
Inman	7	6	11S	10W	7800	"	"	0	0.9	0.5
Rose Canyon	8	15	12S	16E	7300	1/14	0	0	0	2
Bear Wallow	9	6	12S	16E	8100	1/14	14.8	4.5	0	New Course

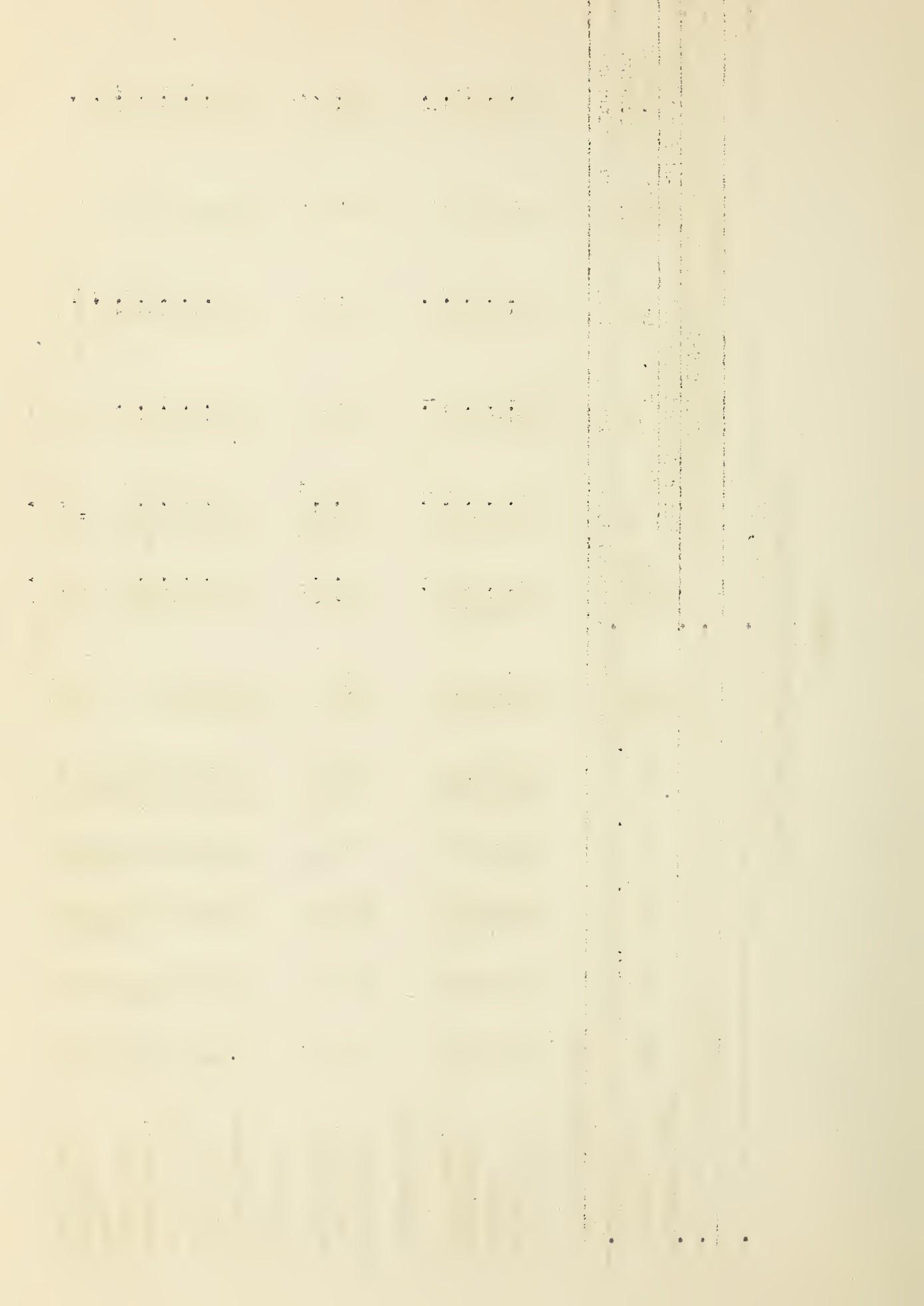


TABLE I

ARIZONA SNOW SURVEYS JANUARY 15, 1949

DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	SNOW COVER MEASUREMENTS			
							Water Content (Inches)		Years of Record	Av. Water Content (Inches)
							Same	Approx. date		
VERDE RIVER										
Iron Springs	1	22	14N	3W	6200	1/15	16.6	5.2	0	0.4
Camp Wood	2	3	16N	6W	5700	1/15	21.1	4.9	0	0.1
Mingus Mountain	3	3	15N	2E	7100	1/15	18.9	4.3	0	0.1
Mormon Lake	4	13	18N	8E	7350	1/15	39.0	10.3	0	1.4
Fort Valley	5	22	22N	6E	7350	1/14	28.7	6.1	0	1.0
Chalender	6	27	22N	3E	7100	1/15	30.2	7.2	0	1.8
SALT RIVER										
Forest Dale	1	2	9N	21E	6000	1/14	5.5	1.4	0.4	1.5
McNary	2	14	8N	23E	7200	1/14	8.9	3.3	0.3	2.5
Nutrioso	3	23	6N	30E	8500	1/14	17.9	4.9	0.7	1.6
Coronado Trail	4	26	5N	30E	8000	1/14	20.9	6.2	1.2	1.8
Milk Ranch	5	28	8N	23E	7000	1/14	4.8	1.2	0	1.9
LOWER COLORADO RIVER										
Bright Angel	1	34	33N	3E	8400	1/15	37.5	8.4	4.6	New Course
Grand Canyon	2	21	30N	4E	7500	1/15	29.7	5.4	0.6	"
Fort Valley	5	22	22N	6E	7350	1/14	28.7	6.1	0.4	1.6
Chalender	6	27	22N	3E	7100	1/15	30.2	7.2	2.3	1.3

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DATE	NAME	AGE	SEX	WEIGHT	REASON
Sept 10	Debbie	9	F	10.5	Spayed
Sept 10	Debbie	9	F	10.5	Spayed
Sept 10	Debbie	9	F	10.5	Spayed
Sept 10	Debbie	9	F	10.5	Spayed

TABLE 2
STATUS OF RESERVOIR STORAGE, January 15, 1949

BASIN and STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE				About Jan. 15 10-Yr.Avg. 1938-1947
			1949	1948	1947	1946	
Agua Fria	Lake Pleasant	179	7	1	3	3	16
Colorado	Lake Havasu	688	592	582	602	572	516 ^a
Colorado	Lake Mead	27,935	19,489	20,320	17,603	19,908	20,583 ^a
Gila	San Carlos	1,200	32	0	14	18	201
Salt River	Salt River ^c	1,771	227	228	426	721	741
Verde	Bartlett	179	34	5	38	7	47 ^b
Verde	Horseshoe	67	17	2	10	10	New

a - Average for years 1939 through 1947

b - Average for years 1941 through 1947

c - Includes Roosevelt, Apache, Saguaro and Canyon Lakes

1. *Chlorophytum* (L.) Willd.

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Chlorophytum Topographicum Linn.
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Chlorophytum Topographicum Linn.

Chlorophytum Topographicum Linn.

LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Forest Dale	Fair & Schroeder
McNary	Fair & Schroeder
Nutrioso	R. L. Diggs
Mormon Lake	M. F. Greaves
Fort Valley	A. P. Loska
Iron Springs	E. Saxby
Camp Wood	C. C. Merritt
Frisco Divide	Earl & Diggs
State Line.	Dean Earl & Della Earl
Coronado Trail.	Diggs & Earl
Rose Canyon	Wm. Hughes
Bear Wallow	Wm. Hughes
Mingus Mountain	Harold Linn
Chalender	Schroeder & Rogers
Milk Ranch	Fair & Schroeder
Bright Angel	S. Brown & J. Brown
Grand Canyon	Fred Brueck

1. *Principles of the law of torts* (1968) 2nd edn. London: Butterworths.

2. *Principles of the law of torts* (1977) 3rd edn. London: Butterworths.

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4. *Principles of the law of torts* (1992) 5th edn. London: Butterworths.

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6. *Principles of the law of torts* (2002) 7th edn. London: Butterworths.

7. *Principles of the law of torts* (2007) 8th edn. London: Butterworths.

8. *Principles of the law of torts* (2012) 9th edn. London: Butterworths.

9. *Principles of the law of torts* (2017) 10th edn. London: Butterworths.

10. *Principles of the law of torts* (2022) 11th edn. London: Butterworths.

The following organizations cooperate in the Arizona snow survey work:

STATE

Nevada Agricultural Experiment Station
Reno, Nevada

FEDERAL

Department of Agriculture
Forest Service
 Apache Forest
 Coconino Forest
 Coronado Forest
 Gila Forest
 Kaibab Forest
 Prescott Forest
 Southwestern Forest and Range Expt.
 Station, Fort Valley, Arizona
Soil Conservation Service
 Division of Irrigation

Department of Commerce
Weather Bureau
 Arizona Section

Department of Interior
Bureau of Reclamation
 Region III
Geological Survey
 Arizona District
Indian Service
 Fort Apache Reservation
National Park Service
 Grand Canyon National Park

Gila Water Commissioner
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association
Phoenix, Arizona

San Carlos Irrigation and Drainage District
Coolidge, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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1. *Leucostoma* (L.) Pers. *Leucostoma* Pers. *Leucostoma* Pers. *Leucostoma* Pers.

<http://www.ncbi.nlm.nih.gov> • <http://www.ncbi.nlm.nih.gov/entrez>

1980-1981-1982-1983-1984-1985-1986-1987-1988-1989

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10. The following table shows the number of hours worked by each employee in a company.

“*It is the first time in my life that I have been so deeply moved by a speech.*”